A NEW CO-DEVELOPMENT OPPORTUNITY FOR TREATMENT OF EPITHELIAL CANCERS AND INFLAMMATORY DISEASES

Reference No.: E-229-2007

Keywords: Therapeutic, cancer, inflammatory disease, G protein-coupled receptor, GPCR, CD97

Background:
The National Cancer Institute seeks a research collaboration to co-develop a treatment for cancer and/or inflammatory diseases. The research would encompass the design of assays, high throughput screening for inhibitors of G protein-coupled receptor-initiated signaling, and preclinical efficacy studies.

The G protein-coupled receptor (GPCR) CD97 is normally expressed in immune cells and smooth muscle, yet is present at very low levels, or is absent in, non-transformed epithelial cells. Carcinomas derived from various epithelial tissues consistently demonstrate increased CD97 expression compared to normal adjacent tissue. Studies with prostate cancer cell lines, as well as a preclinical mouse model of thyroid cancer, indicate that CD97 plays a role in promoting cancer progression to lymphovascular invasion and metastasis.

Inhibition of CD97 in epithelial cancers may therefore arrest cancer progression, and there is evidence of CD97 having a function in inflammatory diseases such as rheumatoid arthritis as well as in other disorders including atherosclerosis, multiple sclerosis, and Gaucher disease.

Technology:
National Cancer Institute's Cell and Cancer Biology Branch researchers have new therapeutic approaches in the treatment of epithelial cancers and inflammatory diseases using inhibitors of CD97, a G-Protein Coupled Receptor (GPCR). Experimental results using a preclinical mouse model of thyroid cancer show that CD97 and LPA receptor are required for proliferation in select thyroid cancer cell lines. CD97-null mice demonstrate improved antibacterial host defense and increased resistance to development of arthritis indicating that inhibition of CD97 may be a safe route for cancer treatment

Potential Applications of CD97 inhibition:
- Arrest cancer progression, adjuvant in cancer treatment, and treatment of inflammatory disease;
- Possible low cytotoxicity to normal cells as indicated by CD97-null mice studies;
- Effective therapeutic strategy for the treatment of certain cancers in combination with LPA receptor inhibitors.

R&D Status: Pre-clinical in vitro and in vivo data is available.

IP Status: Research tool. The NIH will not patent this technology; however, collaboration to co-develop the invention is sought by the inventors. Information on collaboration is available at http://ttc.nci.nih.gov/forms.

Related Technologies: US Patents 6,365,712 (04/02/2002) and 6,846,911 (01/25/ 2005)

Request Information: http://techtransfer.cancer.gov/

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Updated: 03/19/2012